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JUN 23 1965

CURRENT SERIAL RECORDS

WATER SUPPLY OUTLOOK
and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS
for
MONTANA

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE.
and
MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with Federal, State, and private organizations listed on the inside back cover of this report.

MAY 15, JUNE 1, 1965
and
SPECIAL MEASUREMENTS

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Water Supply Outlook Reports:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from advance estimates of the streamflow.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, up to 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

Streamflow forecasts are obtained by a comparison of total or maximum snow accumulation, as measured by snow water equivalent, to the subsequent spring and summer or snowmelt season runoff over a period of years. The snow water equivalent measured in selected snow courses provides most of the index to the streamflow forecast for the following season. More accurate forecasts are usually obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast procedure. Early season forecasts assume average climatic conditions through the snowmelt season.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions. Soil Conservation Service Reports may be secured from Soil Conservation Service, 511 N.W. Broadway - Room 507, Portland, Oregon 97209.

PUBLISHED BY SOIL CONSERVATION SERVICE

<u>REPORTS</u>	<u>ISSUED</u>	<u>LOCATION</u>	<u>COOPERATING WITH</u>
RIVER BASINS			
WESTERN UNITED STATES	MONTHLY (FEB.-MAY)	PORTLAND, OREGON	ALL COOPERATORS
BASIC DATA SUMMARY	OCTOBER 1	PORTLAND, OREGON	ALL COOPERATORS
STATES			
ALASKA	MONTHLY (MAR.-MAY)	PALMER, ALASKA	ALASKA S.C.D.
ARIZONA	SEMI-MONTHLY (JAN.15 - APR.1)	PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO	MONTHLY (FEB.-MAY)	FORT COLLINS, COLORADO	COLO. STATE UNIVERSITY COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO	MONTHLY (JAN.-JUNE)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
MONTANA	MONTHLY (JAN.-JUNE)	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
NEVADA	MONTHLY (JAN.-MAY)	RENO, NEVADA	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN.-JUNE)	PORTLAND, OREGON	OREG. STATE UNIVERSITY OREGON STATE ENGINEER
UTAH	MONTHLY (JAN.-JUNE)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER
WASHINGTON	MONTHLY (FEB.-JUNE)	SPOKANE, WASHINGTON	WN. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB.-JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER

PUBLISHED BY OTHER AGENCIES

<u>REPORTS</u>	<u>ISSUED</u>	<u>AGENCY</u>
BRITISH COLUMBIA	MONTHLY (FEB.-JUNE)	WATER RESOURCES SERVICE, DEPT. OF LANDS, FOREST AND WATER RESOURCES, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA	MONTHLY (FEB.-MAY)	CALIF. DEPT. OF WATER RESOURCES, P.O. BOX 388, SACRAMENTO, CALIF.

WATER SUPPLY OUTLOOK
FEDERAL-STATE-PRIVATE COOPERATIVE SNOW SURVEYS
for
MONTANA

Report Prepared

By

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Snow Survey Supervisor

And

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Snow Survey and Water Supply Forecasting Branch
Soil Conservation Service
Box 855
Bozeman, Montana

Issued By

H. D. Hurd
State Conservationist
Soil Conservation Service
Bozeman, Montana

J. A. Asleson, Director
Montana Agricultural
Experiment Station
Bozeman, Montana



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MONTANA
WATER SUPPLY OUTLOOK
as of
June 1, 1965

The water supply remains good to excellent and the outlook for irrigation water supplies has improved during the past month. Delayed snowmelt coupled with an above average snow pack on May 1 has resulted in an above average June 1 snow pack. The high elevation snow pack in the southwest portion of the state presently contains the maximum of water for this season. This is probably the most water that has been stored in the snow this late in the year.

June 15 surveys are planned for some snow courses. In other areas of the state, high elevation snow pack is well above average.

Runoff during May was below average in the Kootenai, near average in the Flathead and Bitterroot, and above average in the Upper Clark Fork. Below the junction of the Flathead, runoff from the Clark Fork was a little above average.

During May, runoff was a little above average in the Missouri headwaters and slightly below average on streams tributary to the main stem of the Missouri. Runoff was below average in the Yellowstone drainage.

Runoff during the remainder of the season will be quite high, percentage-wise, particularly in the Missouri and Yellowstone headwaters and snowfed streams in central Montana. In these areas the snow line is quite low, and heavy, warm rains during the first 15 days in June may cause flooding. Evenly spaced warm and cool periods with deficient precipitation, or precipitation that falls as snow at higher elevations, will permit a gradual melt of the heavy snow pack.

Major reservoirs have storage available to help control runoff and reduce peak flows. Spillways on many small reservoirs now presently full will probably be used often during the next month.

Soil moisture is generally near field capacity.

THE

1890

The following is a list of the names of the persons who have been elected to the office of the President of the United States, and the names of the persons who have been elected to the office of the Vice President of the United States, for the year 1890.

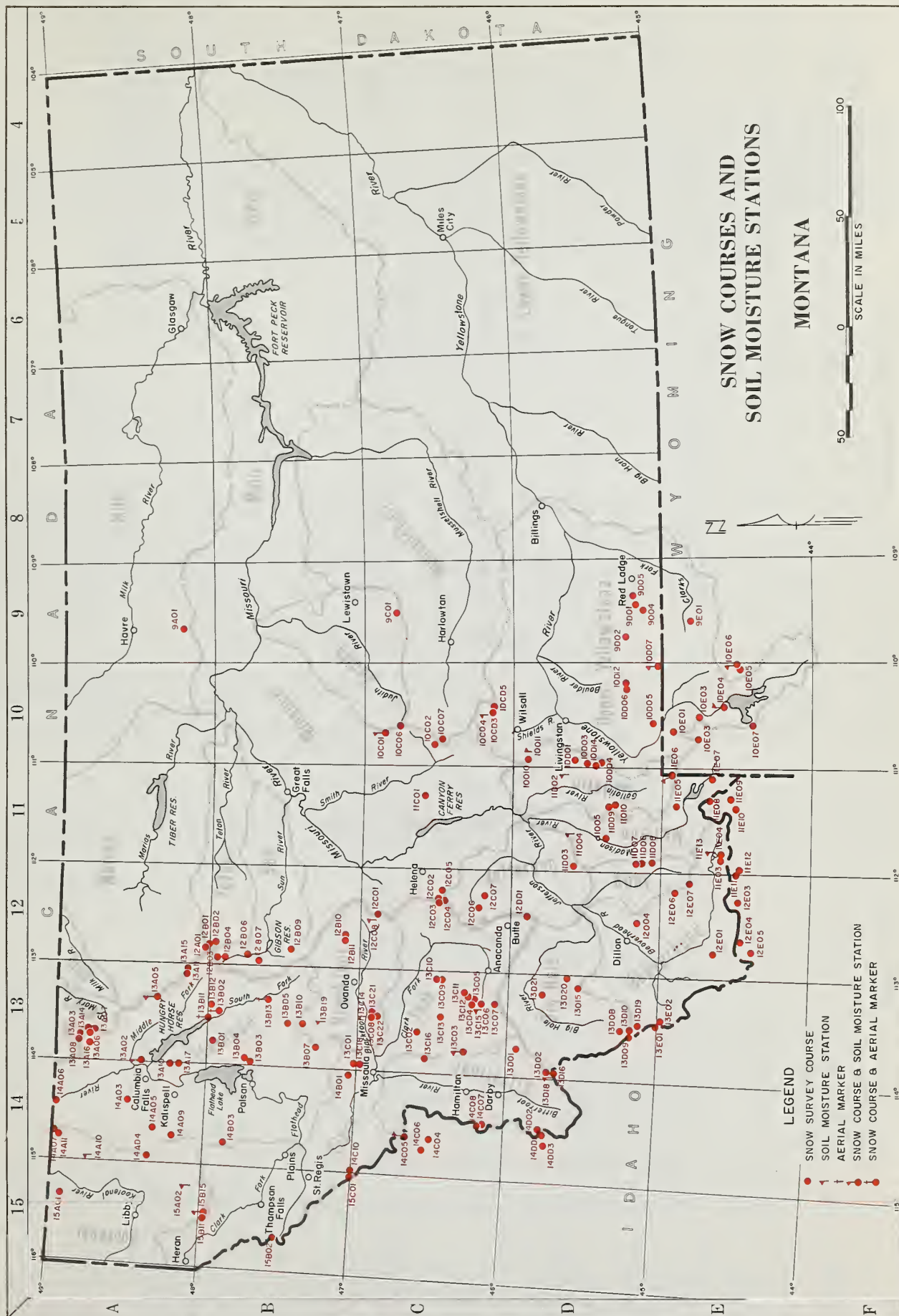
The names of the persons who have been elected to the office of the President of the United States, and the names of the persons who have been elected to the office of the Vice President of the United States, for the year 1890, are as follows:

The names of the persons who have been elected to the office of the President of the United States, and the names of the persons who have been elected to the office of the Vice President of the United States, for the year 1890, are as follows:

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The names of the persons who have been elected to the office of the President of the United States, and the names of the persons who have been elected to the office of the Vice President of the United States, for the year 1890, are as follows:



1965 INDEX to MONTANA SNOW COURSES and SOIL MOISTURE STATIONS

SNOW COURSES

Drainage Basin & Course Name	Number	Elev.	Sec.	Twp.	Range	Record Begin	Measuring Dates	Meas. By
COLUMBIA RIVER BASIN								
KOOTENAI RIVER								
Baree Creek	15811	5500	36	26N	31W	1956	3,4,5, 21	2
Brash Creek	14461	5500	12	30N	26W	1937	3,4,5, 22	1,2
Brash Creek	14461	5500	12	30N	26W	1937	3,4,5, 22	1,2
Greene Creek	14411	4300	4	36N	25W	1965	3,4,5, 21, 6	1,2
Red Mountain	15401	6000	4	36N	25W	1937	3,4,5, 21, 6	1,2
Wesley Divide	14407	5450	20	37N	24W	1937	3,4,5, 21, 6	1,2
FLATHEAD RIVER								
Basco Peak	14803	5150	11	24N	29W	1961	3,4,5	1,5
Basco Peak	13803	6750	4	28N	18W	1941	3,4,5	1,5
Camp Henry	13417	6400	30	22N	18W	1962	3,4,5, 6	1,5
Deer Creek	13402	5600	24	31N	19W	1937	3,4,5	1,2
Deer Creek	14409	5100	8	28N	25W	1960	3,4,5, 6	1,5
Griffin Creek Divide	14409	5100	8	28N	25W	1960	3,4,5	1,5
Coushlick Lake	13812	6300	35	26N	14W	1964	3,4,5, 21, 6	1,5
Hell Roaring Divide	14403	5770	35	28N	24W	1942	3,4,5, 21, 6	1,5
Johnson Creek	13811	5200	18	31N	22W	1951	3,4,5	1,5
Johnson Creek	14405	4300	34	30N	24W	1937	3,4,5	1,2
Logan Creek	13405	5250	34	30N	24W	1934	3,4,5	3
Mineral Creek	13406	4000	29	35N	17W	1937	3,4,5, 21, 6	1,5
Mineral Creek	13406	4000	29	35N	17W	1937	3,4,5, 21, 6	1,5
Spotted Bear Mountain	13802	7600	23	28N	19W	1948	3,4,5	1,2
Strawberry Lake	13400	5600	11	28N	19W	1948	3,4,5	1,2
Trinidad Lake	13801	6100	9	29N	17W	1948	3,4,5	1,2
Upper Chinle Lake	13803	7000	28	30N	15W	1948	3,4,5	1
Upper Chinle Lake	13803	7000	28	30N	15W	1948	3,4,5	1
CLARK FORK RIVER								
Black Flie	13213	7050	26	33N	15W	1949	3,4,5	1,2
Copper Creek	12811	5740	1	15N	9W	1962	3,4,5	1,2
Copper Creek	12811	5740	1	15N	9W	1962	3,4,5	1,2
Coyote Hill	13810	4200	12	18N	16W	1947	3,4,5	1,2
Coyote Hill	13810	4200	12	18N	16W	1947	3,4,5	1,2
Deer Creek	13211	8200	12	28N	12W	1949	3,4,5	1
Gold Creek	13211	8200	12	28N	12W	1949	3,4,5	1
Heart Lake Trail	14210	4800	11	12N	27W	1965	3,4,5	1,2
Hoodoo Creek	13001	5900	16	14N	27W	1937	3,4,5	1,2
Hoodoo Creek	13001	5900	16	14N	27W	1937	3,4,5	1,2
Lubrecht Forest No. 3	13221	5450	19	13N	14W	1951	3,4,5	8
Lubrecht Forest No. 6	13208	4600	23	13N	15W	1951	3,4,5	8
Lubrecht Forest No. 6	13208	4600	23	13N	15W	1951	3,4,5	8
Lubrecht Forest No. 6	13208	4600	23	13N	15W	1951	3,4,5	8
Shelby Summit	13202	7700	30	61N	17W	1957	3,4,5, 21, 6	1
Shelby Summit	13202	7700	30	61N	17W	1957	3,4,5, 21, 6	1
Southern Cross	13202	7700	30	61N	17W	1957	3,4,5, 21, 6	1
Southern Cross	13202	7700	30	61N	17W	1957	3,4,5, 21, 6	1
Spring Gulch	13202	7700	30	61N	17W	1957	3,4,5, 21, 6	1
Stuart Hill	13202	7700	30	61N	17W	1957	3,4,5, 21, 6	1
Stuart Hill	13202	7700	30	61N	17W	1957	3,4,5, 21, 6	1
Stuart Mountain	13201	7400	6	14N	18W	1936	3,4,5	4
Stuart Mountain	13201	7400	6	14N	18W	1936	3,4,5	4
TV Mountain	14801	6800	33	15N	19W	1956	3,4,5	8

CLARK FORK RIVER

Black Flie	13213	7050	26	33N	15W	1949	3,4,5	1,2
Copper Creek	12811	5740	1	15N	9W	1962	3,4,5	1,2
Copper Creek	12811	5740	1	15N	9W	1962	3,4,5	1,2
Coyote Hill	13810	4200	12	18N	16W	1947	3,4,5	1,2
Coyote Hill	13810	4200	12	18N	16W	1947	3,4,5	1,2
Deer Creek	13211	8200	12	28N	12W	1949	3,4,5	1
Gold Creek	13211	8200	12	28N	12W	1949	3,4,5	1
Heart Lake Trail	14210	4800	11	12N	27W	1965	3,4,5	1,2
Hoodoo Creek	13001	5900	16	14N	27W	1937	3,4,5	1,2
Hoodoo Creek	13001	5900	16	14N	27W	1937	3,4,5	1,2
Lubrecht Forest No. 3	13221	5450	19	13N	14W	1951	3,4,5	8
Lubrecht Forest No. 6	13208	4600	23	13N	15W	1951	3,4,5	8
Lubrecht Forest No. 6	13208	4600	23	13N	15W	1951	3,4,5	8
Lubrecht Forest No. 6	13208	4600	23	13N	15W	1951	3,4,5	8
Shelby Summit	13202	7700	30	61N	17W	1957	3,4,5, 21, 6	1
Shelby Summit	13202	7700	30	61N	17W	1957	3,4,5, 21, 6	1
Southern Cross	13202	7700	30	61N	17W	1957	3,4,5, 21, 6	1
Southern Cross	13202	7700	30	61N	17W	1957	3,4,5, 21, 6	1
Spring Gulch	13202	7700	30	61N	17W	1957	3,4,5, 21, 6	1
Stuart Hill	13202	7700	30	61N	17W	1957	3,4,5, 21, 6	1
Stuart Hill	13202	7700	30	61N	17W	1957	3,4,5, 21, 6	1
Stuart Mountain	13201	7400	6	14N	18W	1936	3,4,5	4
Stuart Mountain	13201	7400	6	14N	18W	1936	3,4,5	4
TV Mountain	14801	6800	33	15N	19W	1956	3,4,5	8

MISSOURI RIVER BASIN

Beaverhead River	13810	7600	12	8S	16W	1948	3,4,5	1
Bloody Dick	12804	7400	22	8S	7W	1963	3,4,5	1
Center Creek	13809	8100	11	8S	16W	1948	3,4,5	1
Center Creek	13809	8100	11	8S	16W	1948	3,4,5	1
Gold Stone	11504	6930	26	14S	24W	1948	3,4,5	10
Leaville Canyon	13603	7400	27	14S	24W	1948	3,4,5	10
Leaville Ridge	13603	7400	27	14S	24W	1948	3,4,5	10
Leaville Ridge	13603	7400	27	14S	24W	1948	3,4,5	10
Trail Creek	13603	7400	27	14S	24W	1948	3,4,5	10
Trail Creek	13603	7400	27	14S	24W	1948	3,4,5	10
White Pine Ridge	12601	8850	18	14S	5W	1948	3,4,5	1

SOIL MOISTURE STATIONS

Drainage Basin & Course Name	Number	Elev.	Sec.	Twp.	Range	Record Begin	Measuring Dates	Meas. By
COLUMBIA RIVER BASIN								
KOOTENAI RIVER								
Baree Trail	13012H	3800	5	25N	30W	1964	Monthly	2
Murphy Lake R. S.	14410H	3000	5	24N	25W	1964	Monthly	2
Raven R. S.	13602H	3950	2	26N	25W	1964	Monthly	2
FLATHEAD RIVER								
Deer Mountain	13602H	5600	24	31N	19W	1956	Monthly	1
Deer Mountain	13602H	5600	24	31N	19W	1956	Monthly	1
Clark Fork River	13012H	6450	6	5N	13W	1962	Monthly	1
Georgetown Lake	13012H	4100	11	13N	15W	1961	Monthly	8
Lubrecht Forest	13012H	4100	11	13N	15W	1961	Monthly	8
Lubrecht Forest	13012H	4100	11	13N	15W	1961	Monthly	8
Shelby Summit	13012H	7260	30	61N	17W	1964	Monthly	1
BITTERROOT RIVER								
Deer Mountain	13012H	7100	4	2S	19W	1962	Monthly	1
Deer Mountain	13012H	7100	4	2S	19W	1962	Monthly	1
Clark Fork River	13012H	7100	4	2S	19W	1962	Monthly	1
Clark Fork River	13012H	7100	4	2S	19W	1962	Monthly	1
Georgetown Lake	13012H	7100	4	2S	19W	1962	Monthly	1
Lubrecht Forest	13012H	7100	4	2S	19W	1962	Monthly	1
Lubrecht Forest	13012H	7100	4	2S	19W	1962	Monthly	1
Shelby Summit	13012H	7100	4	2S	19W	1962	Monthly	1
MISSOURI RIVER BASIN								
BEAVERHEAD RIVER								
Lakeview	11213H	6700	23	14S	24W	1962	Monthly	10
Lakeview	11213H	6700	23	14S	24W	1962	Monthly	10
MADISON RIVER								
Red Bluff	11004H	4800	7	3S	1E	1961	Monthly	7
Red Bluff	11004H	4800	7	3S	1E	1961	Monthly	7
GALLATIN RIVER								
College Site	11002H	4850	18	2S	5E	1964	Monthly	1
College Site	11002H	4850	18	2S	5E	1964	Monthly	1
Twenty-One Mile	11002H	7150	1	11S	5E	1963	Monthly	6
Twenty-One Mile	11002H	7150	1	11S	5E	1963	Monthly	6
MISSOURI RIVER MAIN STEM								
Steeple Pass	12004H	6350	16	13N	7W	1963	Monthly	1
Steeple Pass	12004H	6350	16	13N	7W	1963	Monthly	1
Steeple Pass	12004H	6350	16	13N	7W	1963	Monthly	1
Steeple Pass	12004H	6350	16	13N	7W	1963	Monthly	1
YELLOWSTONE RIVER								
Battle Ridge	10011H	6620	2	2N	7E	1960	Monthly	1
Battle Ridge	10011H	6620	2	2N	7E	1960	Monthly	1
North Entrance	10011H	7250	33	2S	1E	1964	Monthly	6
North Entrance	10011H	7250	33	2S	1E	1964	Monthly	6
Shields River	10011H	5850	4	4N	10E	1960	Monthly	1
Shields River	10011H	5850	4	4N	10E	1960	Monthly	1

1/ Nurella 1,2,3,4,5, 21, 6 refer to January 1, February 1, March 1, April 1, May 1, May 15 and June 1.

2/ Nurella refer to Agency that secures the snow survey as follows:

1. Soil Conservation Service
2. U. S. Forest Service
3. Montana Experiment Station
4. Montana Power Company
5. U. S. Indian Service
6. National Park Service
7. Montana Experiment Station
8. Montana Power Company
9. Division Meter & Power Bureau
10. Bureau of Sport Fisheries & Wildlife

M - Soil Moisture

SNOW SURVEY DATA

AS OF

SNOW COURSE			CURRENT DATA			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE

(inches)

ADDITIONS AND CORRECTIONS TO PREVIOUSLY PUBLISHED 1965 DATA

JANUARY 1, 1965

COLUMBIA RIVER BASIN

Flathead River

14A03	Hell Roaring Divide	5770	12/31	78	22.2
13B13	Holbrook	4530	1/10	24	6.3A
13B02	Spotted Bear Mountain	7000	1/10	33	9.0A
13B11	Twin Creeks	3580	1/10	30	7.8A

Clark Fork River

13C21	Lubrecht Forest No. 3	5450	12/29	18	3.1
13C22	Lubrecht Forest No. 4	4650	12/29	11	1.8
13C01	Stuart Mountain	7400	1/5	67	20.2

MISSOURI RIVER BASIN

Gallatin River

11E06	Twenty-One Mile	7150	12/31	67	13.8
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FEBRUARY 1, 1965

COLUMBIA RIVER BASIN

Flathead River

13B11	Twin Creeks	3580	2/12	43	11.6A
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MISSOURI RIVER BASIN

Gallatin River

10D14	Arch Falls	7350	1/30	44	10.7
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A - Aerial Observation

SNOW SURVEY DATA

AS OF

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

MARCH 1, 1965

COLUMBIA RIVER BASIN

Kootenai River

15B15 Baree Trail 3800 3/1 34 12.1

Flathead River

14A06 Kishenehn 3890 3/1 39 13.2

Clark Fork River

13C04 Intergaard 6450 3/1 33 10.1

13C05 Southern Cross 6500 3/1 28 7.8

MISSOURI RIVER BASIN

Madison River

11E21 Potomageton Park 7150 3/16 53 19.0

11E20 Sentinel Creek 8300 3/16 83 32.2

Gallatin River

10D15 Bridger Bowl 7250 3/12 77 29.9

Sun-Teton-Marias Rivers

12B07 Goat Mountain 7000 2/28 50 13.4

Judith River

9C01 Crystal Lake 6100 3/3 44 13.6

APRIL 1, 1965

COLUMBIA RIVER BASIN

Kootenai River

14A04 Brush Creek 5000 3/30 43 13.9

14A11 Graves Creek 4300 3/31 61 21.6

15A01 Red Mountain 6000 4/1 58 22.0

Flathead River

13A02 Desert Mountain 5600 3/29 57 21.8

13A16 Mineral Creek 4000 3/30 73 27.4

Clark Fork River

13C04 Intergaard 6450 4/1 34 10.6

13C05 Southern Cross 6500 4/1 29 9.2

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NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE

SNOW SURVEY DATA

AS OF

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

APRIL 1, 1965 (Continued)

MISSOURI RIVER BASIN

Beaverhead River

13D15 Elk Horn Springs 7800 3/30 49 15.2

Missouri River (Main Stem)

12C05 Chessman Reservoir 6200 3/30 24 6.1

Madison River

11E25 Freezeout Lake 7200 4/14 39 14.6
 11E26 Freezeout Mountain 8250 4/14 71 24.8
 11E22 Lake Creek 6100 4/14 27 10.3
 11E23 Meridian Creek 7000 4/13 43 15.2
 11E20 Sentinel Creek 8300 4/2 83 31.7
 11E24 Tepee Creek 8000 4/13 68 22.7

MAY 1, 1965

COLUMBIA RIVER BASIN

Kootenai River

15B11 Baree Creek 5500 4/30 88 46.2
 15B15 Baree Trail 3800 4/30 0 0.0

Flathead River

13A11 Beaver Lake 5900 5/2 69 31.8
 13B12 Gunsight Lake 6300 5/3 111 50.8
 13A05 Marias Pass 5250 4/27 62 28.0
 13A16 Mineral Creek 4000 5/1 39 17.5
 13A10 Strawberry Lake 5600 5/3 103 53.3

MISSOURI RIVER BASIN

Madison River

Freezeout Lake 7200 5/4 14 5.2
 Freezeout Mountain 8250 5/4 56 24.4
 Lake Creek 6100 5/7 7 1.3
 Meridian Creek 7000 5/3 25 10.0
 Tepee Creek 8000 5/3 55 21.2

Gallatin River

11E06 Twenty-One Mile 7150 4/28 55 24.8

Sun-Teton-Marias Rivers

13A15 Badger Pass 6900 5/3 106 49.8
 12B07 Goat Mountain 7000 4/30 42 15.9

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NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE

SNOW SURVEY DATA

AS OF MAY 15, 1965

(inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

COLUMBIA RIVER BASIN

Kootenai River

15B11	Baree Creek	5500	5/14	68	36.6	57.5	42.3*
15B15	Baree Trail	3800	5/14	0	0.0	-	-
BC 10	Fernie	3500	5/17	0	0.0	0.0	-
BC 11	Glacier	4100	5/15	34	17.4	25.6	19.3*
14A11	Graves Creek	4300	5/14	24	11.6	-	-
BC 43	Gray Creek	5100	5/16	38	17.5	23.5	17.6*
BC 33	Kicking Horse	5400				8.7	7.8*
BC 32	Marble Canyon	5000	5/15	17	6.1	5.4	8.7*
BC 10B	Morrissey Ridge	6100				-	-
BC 10A	New Fernie	4100	5/17	2	0.9	1.0	-
15A01	Red Mountain	6000	5/13	36	17.0	18.0	18.4*
BC 20A	Sullivan Mine	5100	5/14	9	3.9	8.1	6.8*
14A07	Weasel Divide	5450	5/14	64	34.5	36.4	32.6*

Flathead River

14A03	Hell Roaring Divide	5770	5/14	58	29.7	42.5	-
13B07	North Fork Jocko	6330	5/14	95	50.4	59.2	-

Clark Fork River

13C13	Black Pine	7100	5/13	36	15.6	-	-
13C03	Skalkaho Summit	7260	5/13	70	34.2	28.8	23.0*
13C01	Stuart Mountain	7400	5/16	68	34.6	-	-
14B01	TV Mountain	6800	5/15	44	20.9	-	-

Bitterroot River

13D02	Gibbons Pass	7100	5/14	52	26.9	25.9	20.1*
14C07	Lost Horse	5940	5/13	67	33.0	-	-
13D22	Saddle Mountain	7940	5/14	69	34.4	-	-
14C08	Twin Lakes	6510	5/13	96	48.8	-	-

SNOW SURVEY DATA

AS OF MAY 15, 1965

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

MISSOURI RIVER BASIN

Madison River

11E25	Freezeout Lake	7200	5/17	0	0.0	-	-
11E26	Freezeout Mountain	8250	5/17	43	20.6	-	-
11E22	Lake Creek	6100	5/17	0	0.0	-	-
11E23	Meridian Creek	7000	5/17	0	0.0	-	-
11E24	Tepee Creek	8000	5/17	46	19.4	-	-

Gallatin River

10D14	Arch Falls	7350	5/15	46	19.0	-	-
10D15	Bridger Bowl	7250	5/14	68	32.6	-	-
10D04	Devil's Slide	8100	5/15	80	35.0	-	-
10D03	Hood Meadow	6600	5/15	25	10.0	-	-

Missouri River (Main Stem)

10C01	Kings Hill	7500	5/13	54	21.6	-	-
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Judith River

10C06	Spur Park	8000	5/13	71	31.0	-	-
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Upper Yellowstone River

9D01	Camp Senia	7890	5/14	41	14.6	-	-
9D04	Timberline Creek	8850	5/14	75	29.0	-	-

SNOW SURVEY DATA

AS OF JUNE 1, 1965

(inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

COLUMBIA RIVER BASIN

Kootenai River

BC 11	Glacier	4100	5/30	25	11.5	15.7	8.4*
14A11	Graves Creek	4300	6/1	2	0.8	-	-
BC 43	Gray Creek	5100	5/29	23	11.2	17.3	9.5*
BC 33	Kicking Horse	5400	5/31	5	1.5	3.0	-
15A01	Red Mountain	6000	6/2	15	7.4	2.4	6.6*
14A07	Weasel Divide	5450	6/1	42	23.6	21.8	-

Flathead River

13B03	Big Creek	6750	6/1	83	49.4	48.4	42.5*
13A02	Desert Mountain	5600	5/28	1	0.7	1.5	-
13B04	Fatty Creek	5500	6/1	11	5.8	11.8	-
14A03	Hall Roaring Divide	5770	6/2	28	16.0	28.2	-
13B07	North Fork Jocko	6330	6/2	62	33.9	41.8	30.3*

Clark Fork River

13C13	Black Pine	7100	5/27	24	11.0	-	-
			6/1	12	5.0	-	-
13C03	Skalkaho Summit	7260	6/1	44	24.0	19.6	14.1*
13C01	Stuart Mountain	7400	5/29	53	30.5	-	20.4*

Bitterroot River

13D02	Gibbons Pass	7100	6/2	26	14.6	11.4	6.7*
14C07	Lost Horse	5940	6/1	43	21.9	-	-
13D22	Saddle Mountain	7940	6/2	50	26.4	-	-
14C08	Twin Lakes	6510	6/1	68	37.3	-	-

MISSOURI RIVER BASIN

Madison River

11E25	Freezeout Lake	7200	6/1	0	0.0	-	-
11E26	Freezeout Mountain	8250	6/1	29	14.5	-	-
11E22	Lake Creek	6100	6/1	0	0.0	-	-
11E23	Meridian Creek	7000	6/1	0	0.0	-	-
11E24	Tepes Creek	8000	6/1	32	14.1	-	-

Gallatin River

10D14	Arch Falls	7350	5/30	38	17.0	10.0	-
10D15	Bridger Bowl	7250	5/31	54	28.0	-	-
10D04	Devil's Slide	8100	5/30	75	35.2	25.9	-
10D03	Hood Meadow	6600	5/30	11	4.4	0.0	-

Missouri River Main Stem

10C01	Kings Hill	7500	6/1	41	18.8	-	-
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Judith River

10C06	Spur Park	8000	6/1	60	27.8	-	-
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Upper Yellowstone River

9D01	Camp Senia	7890	5/28	34	14.7	-	-
9D04	Timberline Creek	8850	5/28	64	28.8	-	-

- 8 -

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). *ADJUSTED AVERAGE

SOIL MOISTURE DATA

AS OF

(Inches)

SOIL MOISTURE STATION			SOIL PROFILE		CURRENT DATA		PAST RECORD
NO.	NAME	ELEVATION	DEPTH	FIELD CAPACITY	DATE OF SURVEY	SOIL MOISTURE	LAST YEAR **AVERAGE

ADDITIONS AND CORRECTIONS TO PREVIOUSLY PUBLISHED 1965 DATA

COLUMBIA RIVER BASIN

Kootenai

15B15M	Baree Trail	3800	48	7.5	4/30	6.7	
14A10M	Murphy Lake R.S.	3000	48	22.6	3/1	21.7	
15A02M	Raven R.S.	3050	48	23.0	1/4	21.5	
					2/2	22.0	

Flathead

13A02M	Desert Mountain	5600	54	8.4	10/2	5.6	
					1/4	7.1	
					3/29	7.6	
13A05M	Marias Pass	5250	54	6.5	1/29	5.5	
13B19M	Seeley Lake R.S.	4030	48	10.6	12/30	6.9	

Bitterroot

13D18M	Gibbons Pass	7100	48	7.1	4/30	7.2	
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MISSOURI RIVER BASIN

Beaverhead

11E13M	Lakeview	6700	48	15.3	12/3	6.2	
					1/8	11.2	
					2/1	11.2	
					3/3	13.6	
					4/1	13.4	

Missouri Main Stem

10C01M	Kings Hill	7420	48	11.8	12/30	7.8	
12C08M	Stemple Pass	6350	48	5.9	4/24	5.4	

Yellowstone

10D11M	Battle Ridge	6020	48	15.4	9/1	10.8	
					10/2	10.4	
					11/5	11.6	
					12/1	12.9	
					12/31	14.6	

**AVERAGE FOR PERIOD OF RECORD

SOIL MOISTURE DATA

AS OF JUNE 1, 1965

(Inches)

SOIL MOISTURE STATION			SOIL PROFILE		CURRENT DATA		PAST RECORD	
NO.	NAME	ELEVATION	DEPTH	FIELD CAPACITY	DATE OF SURVEY	SOIL MOISTURE	LAST YEAR	**AVERAGE

COLUMBIA RIVER BASIN

Kootenai

15B15M	Baree Trail	3800	48	7.5			-	-
14A10M	Murphy Lake R.S.	3000	48	22.6	6/2	22.1	-	-
15A02M	Raven R.S.	3050	48	23.0			-	-

Flathead

13A02M	Desert Mountain	5600	54	8.4			8.9	8.7
13A05M	Marias Pass	5250	54	6.5	5/31	6.1	6.1	5.8

Clark Fork

13C15M	Georgetown Lake	6450	48	9.0*	6/1	8.0	7.8	-
13B19M	Seeley Lake	4030	48	11.9*	6/3	10.8	10.6	-
13C02M	Skalkaho Summit	7260	48	10.8	6/1	10.2	-	-

Bitterroot

13D18M	Gibbons Pass	7100	48	7.1	6/2	7.0	7.2	-
14C05M	Lolo Pass	5250	48	10.6*	6/1	10.1	10.2	-

MISSOURI RIVER BASIN

Beaverhead

11E13M	Lakeview	6700	48	15.3	6/1	15.7	15.0	-
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Madison

10D04M	Red Bluff	4800	40	4.7	5/29	2.4	3.5	-
--------	-----------	------	----	-----	------	-----	-----	---

Gallatin

11D02M	College Site	4856	54	14.5	5/28	13.7	10.4	10.9
11E06M	Twenty-One Mile	7150	48	8.8	5/28	9.9	10.1	-

Missouri Main Stem

10C01M	Kings Hill	7420	48	11.8	6/1	10.0	10.4	-
12C08M	Stemple Pass	6350	48	5.9	6/2	5.2	5.1	-

Yellowstone

10D11M	Battle Ridge	6020	48	17.6*	6/1	15.8	13.9	-
10D07M	Northeast Entrance	7350	48	9.4	5/31	8.6	9.6	-

**AVERAGE FOR PERIOD OF RECORD

*Revised

WIND VELOCITY DATA

(See page 10)

Station No. 100 Date 10/10/55 Time 1400

WIND VELOCITY DATA

Time	Dir	Spd	Dir	Spd	Remarks	Remarks
1400	090	10	090	10	Light breeze	Light
1410	090	10	090	10	Light breeze	Light
1420	090	10	090	10	Light breeze	Light
1430	090	10	090	10	Light breeze	Light
1440	090	10	090	10	Light breeze	Light

WIND VELOCITY DATA

Time	Dir	Spd	Dir	Spd	Remarks	Remarks
1450	090	10	090	10	Light breeze	Light
1500	090	10	090	10	Light breeze	Light
1510	090	10	090	10	Light breeze	Light
1520	090	10	090	10	Light breeze	Light
1530	090	10	090	10	Light breeze	Light

RESERVOIR STORAGE DATA

AS OF MAY 31, 1965

(1000 Acre Feet)

			USEABLE STORAGE			
BASIN	RESERVOIR	USEABLE CAPACITY	THIS YEAR	LAST YEAR	AVERAGE	
COLUMBIA RIVER BASIN						
Flathead	Hungry Horse	3,428.0	2,245.0	2,547.0	2,793.6**	
	Flathead Lake	1,791.0	1,457.0	1,556.0	1,559.2	
	Camas 1/	45.2	35.0	25.1	41.7	
	Mission Valley 2/	100.3	58.3	43.6	68.8	
Clark Fork	Georgetown Lake	31.0	25.3	28.2	24.0	
Bitterroot	Noxon Rapids	334.6	192.2	161.7	-	
	Como	34.9	28.7	18.1	29.0	
	Painted Rocks	31.7		-	32.4	
MISSOURI RIVER BASIN						
Beaverhead	Clark Canyon	255.6	147.3	-	-	
	Lima	84.0	77.9	53.7	58.1	
Ruby	Ruby	38.8		-	35.4**	
Madison	Hebgen Lake	384.8	262.3	298.0	270.5	
	Ennis Lake	41.0	24.5	38.2	35.6	
Gallatin	Middle Creek	8.0	5.1	7.2	6.4**	
Missouri	Canyon Ferry	2,043.0	1,603.0	1,851.0	1,756.8**	
	Hauser & Helena	61.9	46.5	64.2	53.4	
	Lake Helena	10.4	4.3	11.3	7.6	
	Holter Lake	81.9	70.8	78.1	72.8	
	Smith River	10.7	11.6	11.4	8.8**	
	Ackley Lake	5.8		-	4.4	
	Durand	7.0	7.0	7.0	6.5	
	Martinsdale	23.1	20.5	13.6	15.0	
	Deadman's Basin	72.2	70.2	64.2	46.8**	
	Fort Peck	19,410.0	16,880.0	12,780.0	11,651.7	
	Sun	Gibson	105.0	94.4	93.1	94.4
		Willow Creek	32.3	25.2	25.2	28.5
		Pishkun	32.0	30.9	31.4	27.0
Marias	Lower Two Medicine	16.6	-	15.0	8.7	
	Four Horns	19.2		-	11.7	
	Swift	30.0	-	21.6	29.6	
	Lake Frances	112.0	97.5	77.6	104.4	
	Tiber	1,313.0	979.2	750.2	729.4**	
Milk	Fresno	127.2	119.9	98.2	107.1	
	Nelson	66.8	55.5	27.2	40.7	
Yellowstone	Lake Sherburne	66.1	34.4	16.7	35.2	
	Mystic Lake	20.8	1.9	3.6	6.3	
	Tongue River	68.0	26.9	-	29.3	
	Cooney	27.5	15.2	19.8	17.9**	

1/ Sum of four small reservoirs on west side of Flathead Lake.

2/ Sum of eight small reservoirs in Mission Valley not including Jocko Lake.

RESEARCH STORAGE DATA

1960-1961

Year	Month	Day	Time	Location	Storage	Remarks
1960	1	1	10:00	Room 101	100	Initial inventory
1960	1	15	10:00	Room 101	100	Inventory check
1960	2	1	10:00	Room 101	100	Inventory check
1960	2	15	10:00	Room 101	100	Inventory check
1960	3	1	10:00	Room 101	100	Inventory check
1960	3	15	10:00	Room 101	100	Inventory check
1960	4	1	10:00	Room 101	100	Inventory check
1960	4	15	10:00	Room 101	100	Inventory check
1960	5	1	10:00	Room 101	100	Inventory check
1960	5	15	10:00	Room 101	100	Inventory check
1960	6	1	10:00	Room 101	100	Inventory check
1960	6	15	10:00	Room 101	100	Inventory check
1960	7	1	10:00	Room 101	100	Inventory check
1960	7	15	10:00	Room 101	100	Inventory check
1960	8	1	10:00	Room 101	100	Inventory check
1960	8	15	10:00	Room 101	100	Inventory check
1960	9	1	10:00	Room 101	100	Inventory check
1960	9	15	10:00	Room 101	100	Inventory check
1960	10	1	10:00	Room 101	100	Inventory check
1960	10	15	10:00	Room 101	100	Inventory check
1960	11	1	10:00	Room 101	100	Inventory check
1960	11	15	10:00	Room 101	100	Inventory check
1960	12	1	10:00	Room 101	100	Inventory check
1960	12	15	10:00	Room 101	100	Inventory check
1961	1	1	10:00	Room 101	100	Inventory check
1961	1	15	10:00	Room 101	100	Inventory check
1961	2	1	10:00	Room 101	100	Inventory check
1961	2	15	10:00	Room 101	100	Inventory check
1961	3	1	10:00	Room 101	100	Inventory check
1961	3	15	10:00	Room 101	100	Inventory check
1961	4	1	10:00	Room 101	100	Inventory check
1961	4	15	10:00	Room 101	100	Inventory check
1961	5	1	10:00	Room 101	100	Inventory check
1961	5	15	10:00	Room 101	100	Inventory check
1961	6	1	10:00	Room 101	100	Inventory check
1961	6	15	10:00	Room 101	100	Inventory check
1961	7	1	10:00	Room 101	100	Inventory check
1961	7	15	10:00	Room 101	100	Inventory check
1961	8	1	10:00	Room 101	100	Inventory check
1961	8	15	10:00	Room 101	100	Inventory check
1961	9	1	10:00	Room 101	100	Inventory check
1961	9	15	10:00	Room 101	100	Inventory check
1961	10	1	10:00	Room 101	100	Inventory check
1961	10	15	10:00	Room 101	100	Inventory check
1961	11	1	10:00	Room 101	100	Inventory check
1961	11	15	10:00	Room 101	100	Inventory check
1961	12	1	10:00	Room 101	100	Inventory check
1961	12	15	10:00	Room 101	100	Inventory check

Inventory check completed on 12/15/61. Total inventory 100.

1.96
R31 Farno
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WATER SUPPLY OUTLOOK
AND
FEDERAL-STATE-PRIVATE COOPERATIVE SNOW SURVEYS
for
MONTANA

SPECIAL SNOW SURVEYS
as of
June 15, 1965

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JUL 8 - 1965

Report Prepared

CURRENT SERIAL RECORDS

By

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Snow Survey Supervisor

And

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Bozeman, Montana

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Montana Agricultural
Experiment Station
Bozeman, Montana

The mountain snow pack was heavy in most areas of Montana throughout the 1965 season. Record or near record amounts of water were measured at many high elevation snow courses.

Snowmelt is later than normal over most of the state. In the southwestern part of the state, particularly on the Gallatin and Yellowstone headwaters, snow continued to increase its stored water at the higher elevations through June 1. As a result, measurements on some snow courses were maximum for the season on June 1.

Special surveys were made on June 15 to assess the amount of the remaining snow cover. Last year, special surveys were obtained on June 16-18 after a period of severe flooding.

SNOW SURVEY DATA

AS OF JUNE 15, 1965

SNOW COURSE			CURRENT DATA			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE

(Inches)

COLUMBIA RIVER BASIN

Kootenai River

14A11	Graves Creek	4300	6/16	0	0.0	-	-
14A07	Weasel Divide	5450	6/16	6	3.1	5.0	-

Flathead River

13B07	North Fork Jocko	6330	6/16	29	17.0	24.2	-
-------	------------------	------	------	----	------	------	---

Clark Fork River

13C13	Black Pine	7100	6/15	0	0.0	0.0	-
13C03	Skalkaho Summit	7260	6/15	11	6.0	8.6	-

Bitterroot River

14C07	Lost Horse	5940	6/14	15	7.8	18.0	-
14C08	Twin Lakes	6510	6/14	37	20.0	27.4	-

MISSOURI RIVER BASIN

Gallatin River

10D14	Arch Falls	7350	6/15	13	6.4	1.1	-
10D15	Bridger Bowl	7250	6/15	25	14.1	-	-
10D04	Devil's Slide	8100	6/15	51	25.6	20.4	-
10D03	Hood Meadow	6600	6/15	0	0.0	0.0	-

Missouri River (Main Stem)

10C01	Kings Hill	7500	6/14	19	8.9	1.6	-
-------	------------	------	------	----	-----	-----	---

Judith River

10C06	Spur Park	8000	6/14	35	17.2	7.0	-
-------	-----------	------	------	----	------	-----	---

Upper Yellowstone

9D01	Camp Senia	7890	6/14	0	0.0	0.0	-
9D04	Timberline Creek	8850	6/14	27	12.9	10.8	-

Agencies Cooperating in Collecting Data Contained in this Bulletin

U. S. Forest Service
Region I, Missoula, Montana

U. S. Geological Survey
Helena, Montana

U. S. Army Corps of Engineers
Portland, Oregon
Seattle, Washington
Omaha, Nebraska

U. S. Indian Irrigation Service
St. Ignatius, Montana

U. S. Weather Bureau
Helena, Montana

U. S. Bureau of Sports Fisheries
and Wildlife
Red Rock Lakes Refuge
Monida, Montana

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Montana Power Company
Butte, Montana

Agricultural Experiment Station
North Montana Branch Station
Havre, Montana

State Water Conservation Board
Helena, Montana

National Park Service
Yellowstone National Park
Glacier National Park

Montana Experiment Station
Montana State College
Bozeman, Montana

Bonneville Power Administration
Portland, Oregon

Montana State University
School of Forestry
Missoula, Montana

Soil Conservation Service
Montana, Wyoming, Idaho

Soil and Water Conservation Districts
Montana Counties

Johnson Flying Service, Inc.
Missoula, Montana

Water Rights Branch, Dept.
of Lands and Forests
Victoria, British Columbia

Department of Northern Affairs
and National Resources
Calgary, Alberta

State Engineer
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